

*epi*TRENDS

A Monthly Bulletin on Epidemiology and Public Health Practice in Washington State

DISASTER RESPONSE: Katrina's Lessons

On August 29, 2005, Hurricane Katrina slammed into the Gulf Coast and devastated huge areas in several states including large parts of New Orleans. Only weeks later, Hurricane Rita affected the same area. Large-scale evacuations, damage to infrastructure including power, water, and sewage systems, and loss of transportation routes could occur with many large scale emergencies. Lessons learned from these disasters, particularly Hurricane Katrina, can direct the efforts of those involved in public health response and planning.

Drinking Water

Due to extensive flooding and infrastructure damage following the hurricane, both potable water systems and natural fresh water were either unavailable or likely to be contaminated with sewage and toxins. Local public health agencies notified the public to use only safe supplies such as bottled water, but with damaged roadways and extensive flooding it was difficult to provide drinking water to stranded groups and individuals. Dehydration was a risk, particularly with summer temperatures.

Food supplies

Food supplies were similarly compromised during the hurricane. Loss of electricity resulted in spoilage of perishable foods. Disruption of transportation systems meant most sheltering sites had rapid depletion of food supplies.

Health Assessments

Tens of thousands of evacuees needed rapid assessment of their health status. Immediate medical screening identified urgent medical requirements such as trauma, critical illnesses, or problems following interrupted medical care, for example the need for insulin. Public health agencies also conducted disease surveillance and environmental inspections at shelters and health care settings. Particular concerns for shelters were preventing outbreaks due to diarrheal, respiratory, and rash illnesses. Similarly, states receiving evacuees used medical intake forms to identify medical and public health needs; at least two suspected cases of tuberculosis and two cases of chickenpox were reported among evacuees.

Shelter

In an emergency situation, shelter can be essential to protect against weather and temperature extremes. Many cities and towns had extensive flooding of residential areas. There were not sufficient evacuation centers with adequate services to meet the need.

Vol. 10 No. 9



*epi*TRENDS
P.O. Box 47812
Olympia, WA 98504-7812

Mary C. Selecky
Secretary
Maxine Hayes, MD, MPH
State Health Officer
Jo Hofmann, MD
State Epidemiologist for
Communicable Diseases
Deborah Todd, RN, MPH
Managing Editor
Marcia J. Goldoft, MD, MPH
Scientific Editor

Continued page 2

Disruption of Services

Beyond the basics of water, food, and shelter, persons in the flooded areas faced multiple potential health problems including: safe use of alternate heating and power sources, maintaining sanitation in crowded conditions without running water and toilets, risks for trauma, and caring for injuries involving contaminated water. Key public health messages were disseminated to inform the public about health risks with disruption of usual services in flooded areas.

Carbon Monoxide

Carbon monoxide exposure is an ongoing concern in the affected area if generators, grills, camp stoves, or other gasoline, propane, natural gas, or charcoal-burning devices are used without proper ventilation. Such devices should not be used in a building basement, garage, or camper or even outside near an open window, door, or vent.

Potential Disease Outbreaks

In a disaster resulting in crowded living conditions with poor sanitation, outbreaks of diarrhea and respiratory illness are common. No large disease outbreaks were reported in areas affected by Hurricane Katrina, although several shelters had an outbreak of diarrhea. Maintaining routine sanitation whenever possible will reduce disease transmission. Disposal of sewage, washing hands, and safe food preparation and storage are all important, but may not be possible during a major disaster.

Trauma and Injuries

Trauma and injuries are common during evacuation, rescue, and clean-up activities. All persons involved in such efforts should have adequate tetanus immunization and receive care for major or penetrating wounds. Even minor wounds can become infected if immersed in contaminated water; in the affected region infections have been reported due to *Vibrio* species, common marine bacteria. Electrical hazards, chainsaw injuries, and falls can result in severe injuries. Another issue related to clean-up is exposure to mold in previously submerged structures.

Zoonotic Diseases

Public health messages may be appropriate regarding animals, snakes, insects, and potential zoonotic diseases. Rodents, stray pets, and wild animals should be avoided. After flooding there can be increases in mosquito populations with the potential for spread of infections such as West Nile virus. Animal urine can transmit leptospirosis through ingested water. Moving pets to new locations can spread conditions such as heartworm to other animals.

***epi*TRENDS Monthly Posting Alert**

To receive monthly e-mail notification of *epi*TRENDS, please register at this website:

<http://listserv.wa.gov/archives/epitrends.html>

Choose the option to join the listserve. Enter your name and email address.

Immunizations: General

CDC recommended that children and adults being evacuated be vaccinated according to the appropriate child, adolescent and adult immunization schedules. In addition to the vaccines given routinely as part of the child and adolescent schedules, CDC recommends the following vaccines be given to evacuees living in crowded group settings who are not immune (from previous illness or vaccination) or with a contraindication to live virus vaccine (immunocompromised):

- Influenza for everyone ≥ 6 months of age
- Varicella for everyone ≥ 12 months of age
- MMR for everyone ≥ 12 months of age and born during or after 1957
- Hepatitis A for everyone ≥ 2 years of age

Immunizations: Emergency Responders

Emergency responders should receive a tetanus and diphtheria toxoid (receipt of primary series, and Td booster within 10 years). Responders not immune to hepatitis B should receive the series if they will have patient care or direct contact with bodily fluids. Since the risk of other rare conditions such as cholera or typhoid is minimal in the affected population, those vaccines are not recommended.

Immunization Schedules

Childhood and Adolescent Schedule

<http://www.cdc.gov/nip/recs/child-schedule.htm>

Adult Schedule

<http://www.cdc.gov/nip/recs/adult-schedule.htm>

Vaccination for responders

<http://www.bt.cdc.gov/disasters/hurricanes/responderimmun.asp>

Stress

A natural disaster can be a traumatic event for those directly affected as well as their families and those responding with aid. CDC and other agencies have posted resources for coping with a traumatic event. Immediate stresses as well as longer term post-traumatic syndromes can impact survivors and responders.

Future Planning

Public health professionals in Washington would be responsible for responses to a regional catastrophe such as a volcano eruption, earthquake, or wildfire. When evacuation is recommended, preparations should be made for vulnerable populations and for those without the resources to leave an area. The lessons from Hurricane Katrina can help public health planning in the future.

Numerous public health recommendations related to Hurricane Katrina and other potential natural disasters are available at: <http://www.bt.cdc.gov/>